

Final Report for Regional Conservation Needs (RCN) Project 2016-04: Pennsylvania - Gating and Temperature Improvement Projects at Bat Hibernacula

Protecting and Managing Key Winter Habitats to Support Population Recovery

January 29, 2018

Dunbar Mines 1 and 2 -- Fayette County, PA:

Bats surviving White-nose syndrome (WNS) in Pennsylvania are flocking to the sites with temperatures below 42° Fahrenheit (Johnson et al. 2016), and manipulating existing sites that do not currently have these optimal temperatures is a management strategy being employed by the Pennsylvania Game Commission and a significant focus of this RCN project. The two adjacent mines located in Fayette County are known bat hibernation sites, but rarely had sizable populations prior to WNS due to the warmer temperatures they maintained. Both sites have large openings that are approximately 30'w x 40'h each (Figures 1A and 1B), but these are located at the lowest elevation for both mines. This allows all the cold winter air that is denser, to move downslope and exit the sites all summer. Both mines have additional, small openings upslope that will allow cold air to continue to enter each site. It was the goal of this project to create a barrier that will both prohibit human disturbance as well as act as a barrier preventing the cold air from escaping. For both of these large openings, a contractor drilled in the ceiling and floor of the mine opening and inserted 5-inch pipe. To this frame, a standard 4-inch angle iron bat gate was welded to the front of these pipes, creating a human-proof structure that is 11" thick (Figure 3). To the front and back of this, 16-gauge steel was welded and filled with concrete creating a solid wall that will prevent temperature exchange and air flow, and allow the site to start pooling cold air (Figure 4A and 4B). Approved future management actions to build bat-friendly gates are planned for the upslope opening of Dunbar #1. The two bat-friendly gates will allow cold air entry and bat entry while completely prohibiting unapproved human entry, and will complete the restoration and protection of this site. These future gates will be funded using our Indiana Bat Conservation Fund, but are not part of the budget or planning of this RCN grant.

Figure 1A. View looking out from Dunbar Mine No. 1. Before project. This mine does not connect with Dunbar Number 2 at all, and is separate even though entrances are only a couple hundred feet apart.



Figure 1B. View looking out Dunbar Mine No. 2. prior to the project.



Figure 2. View looking out ceiling subsidence inside Dunbar #2.



Figure 3. Air barrier partially built with vertical supports, bat gate, and start of welded steel exterior.



Figure 4A. Completed air dam barrier at mouth of Dunbar 1.



Figure 4B. Completed air dam barrier at mouth of Dunbar 2.

